

REMARKS

Applicant has carefully reviewed and considered the Office Action mailed on August 1, 2003, and the references cited therewith.

Amendments to claims 3, 6, 13, 14, 17, 25, 26, and 29 are proposed; as a result, claims 3-10, 13-22, and 25-34 are now pending in this application. The amendment of claims 6, 17, and 29 was undertaken to delete the word "predetermined". No new matter was added by these amendments. The amendment of claims 3, 6, 13, 14, 17, 25, and 26 was undertaken to correct a typographical error. No new matter was added by these amendments. None of the amendments proposed constitute narrowing amendments.

Discussion of Response to Arguments in the Final Office Action

Applicant has deleted the word "predetermined" from claims 6, 17, and 29. Applicant notes that although the Office Action provides a rebuttal for traversal of this rejection (Office Action at page 2), no formal rejection of these claims under 35 USC § 112, ¶ 2 is asserted. To facilitate prosecution, however, Applicant has deleted the word "predetermined". No new matter is presented by this amendment. Furthermore, the amendment does not constitute a narrowing amendment. Withdrawal of the rejection, if present in the Office Action, is requested.

At page 3 of the final Office Action, the Office Action alleges that "the claims are not so limited in scope ... " (page 3, last two lines), regarding the limitation of "any excess under-fill layer rising above the bump structure" (page 3, beginning of last paragraph). This assertion is a factual error. Claims 4-10, 15-22, and 27-34 all have the limitation of "the under-fill layer covering an entirety of bump-bodies of bumps on the bumped surface" (e.g., claim 4). The assertion should be withdrawn and the claims allowed. Withdrawal of the rejections is respectfully requested.

At page 3 of the final Office Action, the Office Action offers evidence in opposition to the previous assertion that

Saitoh and Grigg are incompatible references since Saitoh teaches adhering adhesive tape to flux provided as an encasing protective layer, and after grinding, performing flux washing to remove the flux. In contrast Grigg et al. teaches uses (sic) a 'mold compound'. Hence, Saitoh appears to apply to a manufacturing step preceding any underfill or 'mold compound' step. Thus, the combination of Saitoh and Grigg et al. at least has redundant encasing operations and it would be negative incentive to combine the teachings of such references.

(Office Action at page 3). The Office Action then makes allegations with which Applicant disagrees.

First, the Office Action alleges "the references are compatible based on the fact that similar elements are used in a back grind process of a die." (Office Action at page 3). Applicant respectfully asserts that this allegation ignores the process incompatibility of combining Saitoh with Grigg et al. as set forth in the herein-cited quotation by the Office. Further, because the combination of Grigg et al. and Saitoh results in a process incompatibility, it can only be reached by using Applicant's disclosure as a guide. Withdrawal of the rejection is respectfully requested.

Second, the Office Action admits that "Grigg states that the mold compound 30 renders the dicing tape used in conventional DBG processes (i.e. as taught by Saitoh) unnecessary." (Office Action at page 3). Applicant agrees. In spite of this admission, the Office Action reaches the conclusion "one can use a dicing tape with the process step of Saitoh, since the dicing tape will not affect the final product and would actually (sic) because mold compounds have a relative high shrinkage rate as evident by Grigg ..." (Office Action at page 3). Applicant considers this conclusion grammatically and factually inconclusive and incomprehensible. Assuming some word were to be inserted in the conclusion after the word "actually" to render the sentence comprehensible, it would not remedy the process incompatibility admitted to by the Office. In any event, the dicing tape, when applied to Saitoh, would necessarily need to be removed in the flux washing of Saitoh. The conclusion of the Office Action therefore can only be reached by using Applicant's disclosure as a guide. Withdrawal of the rejection is respectfully requested.

§103 Rejection of the Claims

Claims 3-10, 13-22 and 25-34 were rejected under 35 USC § 103(a) as being unpatentable over Saitoh (U.S. 6,060,373) in view of Griggs et al. (U.S. 2002/0068453). Applicant respectfully traverses the rejection and requests the Office to consider the following.

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. In re Vaack, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). (M.P.E.P. § 2143 8th Ed).

All descriptions of Applicant's disclosed and claimed embodiments, and all descriptions and rebuttal arguments regarding the applied references, as submitted by Applicant in any form, are repeated and incorporated herein by reference. Further, all Office Action statements regarding the rejections over cited references are respectfully traversed. As additional arguments, Applicant respectfully submits the following.

Regarding the first criterion that there must be a suggestion or motivation to combine reference teachings, Applicant reiterates as set forth above, that a combination of the cited references can only be reached by using Applicant's disclosure as a guide. Withdrawal of the rejections is respectfully requested.

Regarding the second criterion that there must be a reasonable expectation of success, Applicant reiterates the incompatibility of the cited references since Saitoh teaches adhering adhesive tape to flux provided as an encasing protective layer, and after grinding, performing flux washing to remove flux. This teaching of Saitoh provides a negative incentive to combine with Grigg et al., such that no reasonable expectation of success can arise in the combination without using Applicant's disclosure as a guide. Withdrawal of the rejections is respectfully requested.

Regarding the third criterion that the references when combined must teach or suggest all the claim limitations, Applicant reiterates that Office Action has made an assertion that is a factual error. Claims 4-10, 15-22, and 27-34 all have the limitation of "the under-fill layer covering an entirety of bump-bodies of bumps on the bumped surface" (e.g., claim 4). Consequently, the cited references do not teach all the claims limitations. The assertion should be withdrawn and the claims allowed over the references because the combined references fail to teach all the claim limitations. Withdrawal of the rejections is respectfully requested.

Conclusion

Applicant respectfully submits that the claims, amended as proposed, are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney, John Greaves at (801) 278-9171, or the below signed attorney to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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October 31, 2003

By

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Mail Stop AF, Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 30 day of October, 2003

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